

**APPENDIX B**  
**SUBSTITUTE SHEETS**



Table V. HLA Class II Standard Peptide Binding Affinity.

Allele	Nomenclature	Standard Peptide	SEQ ID	Sequence	Binding Affinity (nM)
DRB1*0101	DR1	515.01	2128	PKYVKQNTLKLAT	5.0
DRB1*0301	DR3	829.02	2129	YKTIAFDEEARR	300
DRB1*0401	DR4w4	515.01	2130	PKYVKQNTLKLAT	45
DRB1*0404	DR4w14	717.01	2131	YARFQSQTTLKQKT	50
DRB1*0405	DR4w15	717.01	2132	YARFQSQTTLKQKT	38
DRB1*0701	DR7	553.01	2133	QYIKANSKFIGITE	25
DRB1*0802	DR8w2	553.01	2134	QYIKANSKFIGITE	49
DRB1*0803	DR8w3	553.01	2135	QYIKANSKFIGITE	1600
DRB1*0901	DR9	553.01	2136	QYIKANSKFIGITE	75
DRB1*1101	DR5w11	553.01	2137	QYIKANSKFIGITE	20
DRB1*1201	DR5w12	1200.05	2138	EALIHQLKINPYVLS	298
DRB1*1302	DR6w19	650.22	2139	QYIKANAKFIGITE	3.5
DRB1*1501	DR2w2β1	507.02	2140	GRTQDENPVVHFFK NIVTPRTPPP	9.1
DRB3*0101	DR52a	511	2141	NGQIGNDPNRDIL	470
DRB4*0101	DRw53	717.01	2142	YARFQSQTTLKQKT	58
DRB5*0101	DR2w2β2	553.01	2143	QYIKANSKFIGITE	20

The "Nomenclature" column lists the allelic designations used in Tables XIX and XX.

Table XIX  
CEA DR Super Motif Peptides with

Core Sequence	Core SeqID Num	Exemplary Sequence	Exemplary SeqID Num	Position	DR1	DR2w81	DR2w202	DR3	DR4w4	DR4w15	DR5w11	DR5w12
IPWORLLLT	1962	RWCIPWORLLLTASLI	1815	10	0.6100	0.0110	-0.0007	0.0150	0.0830		-0.0005	
WORLLLTAS	1963	CIPWORLLLTASLLT	1816	12								
LLTASLT	1964	WORLLLTASLT	1817	15								
LLTASLT	1965	ORELLLTASLT	1818	16	-0.0004				-0.0022			
LLTASLT	1966	RELLLTASLT	1819	17								
LLTASLT	1967	ASLLTASLT	1820	22								
FWNPPTAK	1968	LTFWNPPTAK	1821	24								
FWNPPTAK	1969	LTFWNPPTAK	1822	25								
FWNPPTAK	1970	LTFWNPPTAK	1823	33								
FWNPPTAK	1971	LTFWNPPTAK	1824	33	2.5000	0.2300	0.0013	0.8900	0.8600		0.0340	
FWNPPTAK	1972	LTFWNPPTAK	1825	51								
FWNPPTAK	1973	LTFWNPPTAK	1826	65								
FWNPPTAK	1974	LTFWNPPTAK	1827	76								
FWNPPTAK	1975	LTFWNPPTAK	1828	81								
FWNPPTAK	1976	LTFWNPPTAK	1829	92								
FWNPPTAK	1977	LTFWNPPTAK	1830	97								
FWNPPTAK	1978	LTFWNPPTAK	1831	98								
FWNPPTAK	1979	LTFWNPPTAK	1832	99								
FWNPPTAK	1980	LTFWNPPTAK	1833	104								
FWNPPTAK	1981	LTFWNPPTAK	1834	105								
FWNPPTAK	1982	LTFWNPPTAK	1835	109								
FWNPPTAK	1983	LTFWNPPTAK	1836	116								
FWNPPTAK	1984	LTFWNPPTAK	1837	117								
FWNPPTAK	1985	LTFWNPPTAK	1838	121								
FWNPPTAK	1986	LTFWNPPTAK	1839	121								
FWNPPTAK	1987	LTFWNPPTAK	1840	126								
FWNPPTAK	1988	LTFWNPPTAK	1841	127								
FWNPPTAK	1989	LTFWNPPTAK	1842	127								
FWNPPTAK	1990	LTFWNPPTAK	1843	137								
FWNPPTAK	1991	LTFWNPPTAK	1844	141								
FWNPPTAK	1992	LTFWNPPTAK	1845	146								
FWNPPTAK	1993	LTFWNPPTAK	1846	154								
FWNPPTAK	1994	LTFWNPPTAK	1847	176								
FWNPPTAK	1995	LTFWNPPTAK	1848	177								
FWNPPTAK	1996	LTFWNPPTAK	1849	197								
FWNPPTAK	1997	LTFWNPPTAK	1850	202								
FWNPPTAK	1998	LTFWNPPTAK	1851	218								
FWNPPTAK	1999	LTFWNPPTAK	1852	226								
FWNPPTAK	2000	LTFWNPPTAK	1853	231								
FWNPPTAK	2001	LTFWNPPTAK	1854	232								
FWNPPTAK	2002	LTFWNPPTAK	1855	239								
FWNPPTAK	2003	LTFWNPPTAK	1856	254								
FWNPPTAK	2004	LTFWNPPTAK	1857	268								
FWNPPTAK	2005	LTFWNPPTAK	1858	281								
FWNPPTAK	2006	LTFWNPPTAK	1859	282								
FWNPPTAK	2007	LTFWNPPTAK	1860	283								
FWNPPTAK	2008	LTFWNPPTAK	1861	286								
FWNPPTAK	2009	LTFWNPPTAK	1862	288								
FWNPPTAK	2010	LTFWNPPTAK	1863	305								
FWNPPTAK	2011	LTFWNPPTAK	1864	310								
FWNPPTAK	2012	LTFWNPPTAK	1865	315								
FWNPPTAK	2013	LTFWNPPTAK	1866	324								
FWNPPTAK	2014	LTFWNPPTAK	1867	324								
FWNPPTAK	2015	LTFWNPPTAK	1868	332								
FWNPPTAK	2016	LTFWNPPTAK	1869	380								
FWNPPTAK	2017	LTFWNPPTAK	1870	385								
FWNPPTAK	2018	LTFWNPPTAK	1871	392								



Table XIX CEA DR Super Motif Peptides with Binding

Core Sequence	Core SeqID Num	Exemplary Sequence	Exemplary SeqID Num	DR6w19	DR7	DR8w2	DR9	DRw53
IPWQRLLT	1962	RWCIPWQRLLTASL	1815	0.0110	0.0700	-0.0004		
WQRLLLTA	1963	CIPWQRLLTASLLT	1816					
LLLTASLT	1964	WQRLLTASLLTFW	1817					
LLTASLTF	1965	QRLLTASLLTFWNP	1818		-0.0013			
LTASLTF	1966	RLLTASLLTFWNP	1819					
LTFWNPPT	1967	ASLLTFWNPPTAKL	1820					
FWNPPTTA	1968	LLTFWNPPTAKLTI	1821					
WNPPTTAK	1969	LTFWNPPTAKLTIE	1822					
LTFTSPFN	1970	TAKLTFTSPFNVAE	1823					
LLVHNLQ	1971	EVLLLVHNLQHLFG	1824	3.4000	0.4700	0.1200		
LVHNLQPH	1972	VLLLVHNLQHLFGY	1825					
YKGERVDG	1973	YSWYKGERVDGNRQ	1826					
IIGYVIGTQ	1974	NRQIIGYVIGTQQAAT	1827					
IGTQQAATPG	1975	GYVIGTQQAATPGPAY	1828					
YSGREIYP	1976	GPAYSGREIYPNAS	1829					
IYPNASLL	1977	GREIYPNASLLIQN	1830	1.2000	0.5600	0.0083		
IYPNASLIQ	1978	REIYPNASLLIQNI	1831					
LLIQNIQND	1979	EIYPNASLLIQNI	1832	0.3100	0.1600	0.0029		
LIQNIQND	1980	NASLLIQNIQNDTG	1833		-0.0013			
LIQNDTGFY	1981	ASLLIQNIQNDTGF	1834					
LIQNDTGFY	1982	IQNIQNDTGFYTLH	1835					
YTLHVIKSD	1983	DTGFYTLHVIKSDLV	1836	0.0009	0.1100	0.0620		
YTLHVIKSD	1984	TGFYTLHVIKSDLVN	1837					
LHVKSDDL	1985	FYTLHVIKSDLVNEE	1838					
VKSDDL	1986	TLHVKSDDLNEEAT	1839					
IKSDDL	1987	LHVKSDDLNEEATG	1840					
LYNEEATG	1988	KSDDLNEEATGQFRV	1841					
VNEEATGQ	1989	SDLVNEEATGQFRVY	1842					
VPELPKPS	1990	QFRVYPELPKPSISS	1843		-0.0013			
LKPKPSISS	1991	YPPELPKPSISSNSK	1844		0.0033			
ISSNSKPV	1992	KPSISSNSKPVEDK	1845					
VEDKDAVA	1993	SKPVEDKDVAFTCE	1846					
WVNNQSLP	1994	YLWVNNQSLPVSP	1847	1.5000	0.6000	0.0460		
VNNQSLPV	1995	LWVNNQSLPVSPR	1848		0.0082			
LTFTNVTR	1996	NRTLFTFTNVTRNDTA	1849					
VTRNDTAS	1997	LFNVTRNDTASYKCE	1850					
VSARRSDS	1998	ONPVSARRSDSVILN	1851					
VILNLYYGP	1999	SDSVILNLYYGPDPAP	1852					
LYGPDAPT	2000	LNVLYGPDAPTISPL	1853					
YGPDAPTIS	2001	NVLYGPDAPTISPLN	1854					
ISPLNTSYR	2002	APTISPLNTSYRSGE	1855					
LSCHAAASN	2003	NLNLSCHAAASNPPAQ	1856					
WFWNGTFTQ	2004	QYSWFWNGTFTQOOST	1857					
LFIPNITVNN	2005	TOELLFIPNITVNNSG	1858	0.0006	0.0270	0.0039		
FIPNITVNN	2006	QELFIPNITVNNSGS	1859					
IPNITVNN	2007	ELFIPNITVNNSGSY	1860					



Table XIX CEA DR Super Motif Peptides with Binding

Core Sequence	Core SeqID Num	Exemplary Sequence	Exemplary SeqID Num	DR6w19	DR7	DR8w2	DR9	DRw53
ITVNSGSY	2008	IPNITVANSYSYTCQ	1861					
VNNSGSYT	2009	NITVNSGSYTQCOAH	1862					
LNRTVTIT	2010	DTGLNRTVTITVY	1863		0.0088			
VTITVTYAE	2011	RTVTVTITVYAEPPK	1864					
VYAEPPKP	2012	TITVYAEPPKPIITS	1865		-0.0013			
ITNSNPV	2013	KPIITSNNPNPVEDE	1866					
VEDEAVA	2014	SNPVEDEDAVALTCE	1867					
LTLLSVTR	2015	NRTLTLSSVTRNDVG	1868		0.0021			
VTRNDVGP	2016	LLSVTRNDVGPYECG	1869					
VGPYECGI	2017	RNDVGPYECGQNEL	1870					
IQNELSVOH	2018	ECGQNELSVHSDP	1871					
LSVHSDP	2019	QNELSVHSDPVLNL	1872					
VDHSDPVIL	2020	ELSVHSDPVLNL	1873					
VILNLVGP	2021	SDPVLNLVGPDDP	1874					
YGPDDPTS	2022	NVLVGPDDPTSISY	1875					
ISPSYTYR	2023	DPTSISYTYRPGV	1876					
YTYRPGV	2024	SPSYTYRPGVNL	1877					
YRPGVNL	2025	SYTYRPGVNL	1878					
VNLSLSCH	2026	RPVNLVNL	1879					
LSCHAAAN	2027	NLSLSCHAAANPPAQ	1880					
LIDGNIQOH	2028	YSLIDGNIQOHTOE	1881					
LFISNTEK	2029	QELFISNTEKNSG	1882					
FISNTEKN	2030	QELFISNTEKNSGL	1883		-0.0013			
ITEKNSGLY	2031	ISNTEKNSGLYTCQ	1884					
LYTCOANN	2032	NSGLYTCOANNAS	1885					
VKITVSAE	2033	RTTVKITVSAELPK	1886		0.0050	-0.0004		
VSAELPKP	2034	TITVSAELPKPSISS	1887					
LPKPSISSN	2035	SAELPKPSISSNNSK	1888		-0.0013			
WVNGQSLP	2036	YLWWVNGQSLPVSP	1889					
VNGQSLPV	2037	LWVNGQSLPVSPR	1890					
LTLFNVTR	2038	NRTLTLFNVTRNDAR	1891					
VTRNDARA	2039	LFNVTRNDARAYVC	1892					
IQNSVSAN	2040	VCGIQNSVSANRSDP	1893					
VSANRSDP	2041	QNSVSANRSDPVTL	1894					
VTLDLVYG	2042	SDPVTLDLVYGPDP	1895					
LYGPDTPIL	2043	LDVLVYGPDPPIISP	1896		-0.0013			
YGPDPPIIS	2044	DVLVYGPDPPIISPP	1897					
ISPPDSSYL	2045	TPHISPPDSSYLSGA	1898					
LSGANLNL	2046	SSYLSGANLNL	1899					
LSCHSASN	2047	NLNLCHSASNPSQ	1900					
WRINGIPQ	2048	QYSWRINGIPQHTQ	1901					
IPQOHTQVL	2049	INGIPQOHTQVL	1902					
LFIAKITPN	2050	TOVLFIKITPNNG	1903		0.0038			
FIKITPN	2051	QVLFIAKITPNNGT	1904		0.0024			
IAKITPN	2052	VLFIAKITPNNGTY	1905					
YACFVSNL	2053	NGTYACFVSNLATG	1906					



Table XIX CEA DR Super Motif Peptides with Binding

Core Sequence	Core SeqID Num	Exemplary Sequence	Exemplary SeqID Num	DR6w19	DR7	DR8w2	DR9	DRw53
FVSNLATG	2054	YACFVSNLATGRNN	1907		0.0070			
VSNLATGR	2055	ACFVSNLATGRNNSI	1908					
IVKSITVSA	2056	NNSIVKSITVVSAGT	1909	0.0690	0.0370	0.0120		
VKSITVSAS	2057	NSIVKSITVSASGTS	1910	0.0460	0.0760	0.0170		
ITVSASGTS	2058	VKSITVSASGTSPL	1911					
VSASGTSP	2059	SITVSASGTSPLSA	1912					
LSAGATVGI	2060	SPGLSAGATVGIMIG	1913					
IMIGVLVGV	2061	TVGIMIGVLGVVALI	1914					
LTISTPFN	2062	TAKLTIESTPFNVAE	1915					
YKGERVDG	2063	YSWYKGERVDGNRQ	1916					
LPVSPRLQ	2064	NQSLPVSPRLQLSNG	1917					
LNLSCHAA	2065	GENLNLSCHAAASNP	1918					
LPVSPRLQ	2066	GQSLPVSPRLQLSNG	1919					



Table XXa		CEA DR 3a Motif Peptides with Binding														
Core Sequence	Core SeqID Num	Exemplary Sequence	Exemplary SeqID Num	Position	DR1	DR2w2B1	DR2w2B2	DR3	DR4w4	DR4w15	DR5w11	DR5w12				
IQNDTGFT	2067	QNIHQNDTGFTLHV	1920	110	0.0044	0.0105	-	0.3200	-0.0055	-	-0.0008					
IKSDLVNEE	2068	LHVIKSDLVNEEATG	1921	122				0.1300								
LVNEEATGQ	2069	KSDLVNEEATGQFRV	1922	126				0.0058								
VNEEATGQF	2070	SDLVNEEATGQFRVY	1923	127												
VYPPLPKPS	2071	QFRVYPPLPKPSISS	1924	137				-								
FTCEPETQD	2072	AVAFTEPETQDATY	1925	162				-								
YKCEQNPV	2073	TASYKCEQNPVSAR	1926	210				-								
YGPDAPTIS	2074	NVLYGPDAPTISPLN	1927	232												
VYAEPKPF	2075	TITVYAEPKPFITS	1928	315				0.0042								
VEDEDAVAL	2076	SNPVEDEDAVALTCE	1929	332				0.0054								
LTCEPEIQN	2077	AVALTCEPEIQNTTY	1930	340				0.0039								
IQNELSVDH	2078	ECGQNELSVDHSDP	1931	392												
LSVDHSDPV	2079	QNELSVDHSDPVILN	1932	396						0.0820						
YGPDDPTIS	2080	NVLYGPDPTISPSY	1933	410				-								
VSAELPKPS	2081	TITVSAELPKPSISS	1934	493				-								
FTCEPEAQN	2082	AVAFTEPEAQNTTY	1935	518				-								
VTLDVLYGP	2083	SDPVTLDVLYGPDTP	1936	582				-								
YGPDTPIIS	2084	DVLVYGPDTPIISPPD	1937	588				0.0037								





CEA DR 3a Motif Peptides with Binding Data

Core Sequence	Core SeqID Num	Table XXa Exemplary Sequence	Exemplary SeqID Num	DR6w19	DR7	DR8w2	DR9	DRw53
IQNDTGFT	2067	QNIQNDTGFTLHV	1920	0.3600	-0.0017	-0.0009		
IKSDLVNEE	2068	LHVIKSDLVNEEATG	1921					
LVNEEATGQ	2069	KSDLVNEEATGQFRV	1922					
VNEEATQOF	2070	SDLVNEEATGQFRVY	1923					
VYPPLPKPS	2071	QFRVYPPLPKPSISS	1924					
FTCEPETQD	2072	AVAFTEPETQDATY	1925					
YKCEIQNPV	2073	TASYKCEIQNPVSAR	1926					
YGPDAPTIS	2074	NVL YGPDAPTISPLN	1927					
VYAEPPKPF	2075	TITVYAEPPKPFITS	1928					
VEDEDAVAL	2076	SNPVEDEDAVALTCE	1929					
LTCEPEIQN	2077	AVALTCEPEIQNTTY	1930					
IQNELSVDH	2078	ECGIQNELSVDHSDP	1931					
LSVDHSDPV	2079	QNELSVDHSDPVILN	1932					
YGPDDPTIS	2080	NVL YGPDDPTISPSY	1933					
VSAELPKPS	2081	TITVSAELPKPSISS	1934					
FTCEPEAQN	2082	AVAFTEPEAQNTTY	1935					
VTLDVLYGP	2083	SDPVTLVDVLYGPDTP	1936					
YGPDTPIHS	2084	DVL YGPDTPIHSPPD	1937					



CEA DR 3b Motif Peptides with Binding Data

Table XXb

Core Sequence	Core SeqID Num	Exemplary Sequence	Exemplary SeqID Num	Position	DR1	DR2w281	DR2w282	DR3	DR4w4	DR4w15	DR5w11	DR5w12
ATQGRVVP	2085	NEEATGQFRVYP	1938	131				-0.0027				
LNTSYRSGE	2086	ISPLNTSYRSGENLN	1939	242				-0.0027				
YTCQAHNSD	2087	SGSYTCQAHNSDTGL	1940	294				-0.0027				
LPVSPRLQL	2088	NQSLPVSRLQLSND	1941	360				0.0071				
LSNDNRILT	2089	RLQNSDNRTLTLLS	1942	368				0.3200	-0.0055		-0.0008	
LSLSCHAAAS	2090	GVNLSLSCHAAASNP	1943	430	0.0001	-0.0006	-0.0007	0.0075				
LNLSCHSAS	2091	GANLNLSCHSASNP	1944	608				-0.0027				
ASPETHLDM	2092	RLPASPEHLDMLRH	1945	34				-0.0027				
AHNOVRQVP	2093	VLIAHNOVRQVPLQR	1946	84				0.0290				
LIDTNRRA	2094	ALTIDTNRSRACHP	1947	180				0.0350				
IHNTHLCF	2095	LALJHNTHLCFVHT	1948	465	0.0140	0.0990	0.0009	0.3100	-0.0055		0.0025	
LFNPHQAL	2096	WDQLFRNPHQALLHT	1949	482	-0.0001	0.0015	-0.0007	0.9000	-0.0055		-0.0008	
VDLDDKQCP	2097	HSCVDLDDKQCPAEQ	1950	632				-0.0027				
YLEDVRLVH	2098	GMSTYLEDVRLVHRDL	1951	832				0.1800				
IDSECRPRF	2099	CWMIDSECRPRFREL	1952	958	0.0036	-0.0006	0.0150	0.4500	-0.0055		-0.0008	
AAPOPHPP	2100	QGGAAPOPHPAPAFS	1953	1200				-0.0025				
AAASKKMYE	2101	EFQAAISRKMVELVH	1954	104				0.0039				
LHHTLKIGG	2102	VKYLHHTLKIGGEPH	1955	284				-0.0025				
IGGEPHISY	2103	TLKIGGEPHISYPL	1956	290				-0.0025				
AALSRKVAE	2104	EFQAAISRKMVELVH	1957	104				0.0027				
ILGDPKLL	2105	EDSILGDPKLLTQH	1958	235				0.6700	-0.0055		-0.0008	
YKQSQHMT	2106	MAIYKQSQHMTVEVR	1959	160	0.0003	-0.0006	-0.0010	-0.0025				
VEGNLRVEY	2107	LIRVEGNLRVEYLLDD	1960	194				0.0930				
FTLQIRGE	2108	GEYFTLQIRGERFE	1961	325				0.0290				

Table XXb  
CEA DR 3b Motif Peptides with Binding Data

Core Sequence	Core SeqID Num	Exemplary Sequence	Exemplary SeqID Num	DR6w19	DR7	DR8w2	DR9
ATGQFRVYP	2085	NEATGQFRVYPPEL	1938				
INTSYRSGE	2086	ISPLNTSYRSGENLN	1939				
YTQAAHNSD	2087	SGSYTQAAHNSDTGL	1940				
LPVSRQL	2088	NGSLPVSRLQSLND	1941				
LSNDKRLT	2089	RQLSNDKRLTLLS	1942				
LSLSCHAAAS	2090	CYNLSLSCHAAASNP	1943				
LNLSCHSAS	2091	GANLNLSCHSASNP	1944				
ASPTHDM	2092	RLPASPTHDMLRH	1945				
AHNVQVRVP	2093	VLIAHNVQVRVPLQR	1946				
LIDTNRRA	2094	ALTIDTNRSRACP	1947				
IHNTHLCF	2095	LALIHNTHLFCVHT	1948				
LFNRHQAL	2096	WQQLFRNHQALLHT	1949				
VOLDKGCPC	2097	HSCVDLDDKGCPCAEQ	1950				
YLEDVRLVH	2098	GMSTYLEVRLVHRDL	1951				
IDSECRPF	2099	CWMIDSECRPFREL	1952				
AAQPHPPP	2100	QGGAAQPHPPPPAFS	1953				
AAISBKVE	2101	EFOAAISBKVMVELVH	1954				
LHHTLKIGG	2102	VKVLHHTLKIGGEPH	1955				
IGGEPIHSY	2103	TLKIGGEPIHSYPL	1956				
AAISRKVAE	2104	EFOAAISRKVAELVH	1957				
ILGDPKLL	2105	EDSILGDPKLLTOH	1958				
YKQSQHME	2106	MAITKQSQHMEVYR	1959				
VEGNLRVEY	2107	LIRVEGNLRVEYIDD	1960				
FTLQIRGRE	2108	GEYFTLQIRGREFE	1961				



Table XXII. Cross-reactive binding of CEA analog peptides

Source	AA	Sequence	SEQ ID NO:	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	No. A2 Alleles Bound
CEA.24	9	LLTFWNPPPT	2144	179	1720	67	755	-- <sup>2</sup>	2
CEA.24M2V9	9	LMTFWNPPV	2145	4.5	782	7.7	34	3333	3
CEA.24V9	9	LLTFWNPPV	2146	16	307	26	56	952	4
CEA.78	9	QIIGYVIGT	2147	313	148	106	100	150	5
CEA.78L2V9	9	QLIGYVIGV	2158	9.4	5.9	2.3	21	2.3	5
CEA.233	10	VLYGPDAPTI	2149	128	606	270	804	--	2
CEA.233V10	10	VLYGPDAPTV	2150	26	430	16	206	952	4
CEA.411	10	VLYGPDPTI	2151	294	358	476	7400	--	3
CEA.411V10	10	VLYGPDPTV	2152	161	105	91	2467	--	3
CEA.569	9	YVCGIQNSV	2153	98	358	159	80	181	5
CEA.569L2	9	YLCGIQNSV	2154	50	24	12	31	3478	4
CEA.589	9	VLYGPDPTI	2155	200	878	53	638	--	2
CEA.589V9	9	VLYGPDPTV	2156	20	165	91	154	9756	4
CEA.605	9	YLSGANLNL	2157	28	165	2.4	804	--	3
CEA.605V9	9	YLSGANLNV	2158	73	13	13	80	1600	4
CEA.687	9	ATVGIMIGV	2159	36	8.8	20	11	0.80	5
CEA.687L2	9	ALVGIMIGV	2160	10	63	31	100	102	5
CEA.691	9	IMIGVLGV	2161	69	62	13	106	89	5
CEA.691L2	9	ILIGVLGV	2162	22	8.0	3.2	16	160	5

1) Wild-type peptides presented for reference purposes.

2) -- indicates binding affinity = 10,000nM.



TABLE XXII A A01 Analog Peptides

<u>Peptide</u>	<u>AA</u>	<u>Sequence</u>	<u>SEQ ID NO:</u>	<u>Source</u>	<u>A*0101 nM</u>
52.0105	11	RVDGNRQIIIGY	2163	CEA.72	294.1
52.0109	11	RSDSVILNVLY	2164	CEA.225	47.2
52.0113	11	HSDPVILNVLY	2165	CEA.403	25.8
52.0116	11	RSDPVTLDVLY	2166	CEA.581	7.8
57.0004	9	QQDTPGPAY	2167	CEA.87.D3	56.8
57.0007	9	AADNPPAQY	2168	CEA.261.D3	45.5
57.0008	9	ITDNNSGSY	2169	CEA.289.D3	96.2
57.001	9	VTDNDVGPY	2170	CEA.383.D3	4.1
57.0011	9	PTDSPSYTY	2171	CEA.418.D3	37.9
57.0012	9	TIDPSYTY	2172	CEA.419.D3	3.1
57.0013	9	AADNPPAQY	2173	CEA.439.D3	44.6
57.0014	9	ITDKNSGLY	2174	CEA.467.D3	11.9
57.0103	10	PTDSPLNTSY	2175	CEA.240.D3	266
57.0104	10	PTDPSYTY	2176	CEA.418.D3	1.1
57.0105	10	HTASNPSPQY	2177	CEA.616.T2	131.6
57.0106	10	HSDSNPSPQY	2178	CEA.616.D3	44.6



Table XXII B A03 Analog Peptides

Peptide	AA	Sequence	SEQ ID NO:	Source	A*0301 nM	A*1101 nM	A*3101 nM	A*3301 nM	A*6801 nM	A3 XRN
1371.01	10	TVSPPLNTSYR	2179	CEA.241.V2	458.3	54.5	187.5	557.7	8.7	4
1371.02	10	TVSPPLNTSYK	2180	CEA.241.V2K10	16.9	6.3	10588.2	-48333.3	7.3	3
1371.03	10	RVLTLNVTYR	2181	CEA.376.V2	343.8	222.2	11.3	6041.7	666.7	3
1371.04	10	RVLTLNVTYK	2182	CEA.376.V2K10	37.9	50	163.6	-72500	5714.3	3
1371.05	10	TVSPSYTYR	2183	CEA.419.V2	2340.4	3000	29	263.6	8.6	3
1371.06	10	TVSPSYTYK	2184	CEA.419.V2K10	68.8	42.9	3673.5	26363.6	6.7	3
1371.07	9	IVPSYTYR	2185	CEA.420.V2	91.7	13.3	25.7	58	2.6	5
1371.08	9	IVPSYTYK	2186	CEA.420.V2K9	17.2	54.5	720	4328.4	21.6	3
1371.09	10	RVLTLNVTYR	2187	CEA.554.V2	297.3	93.8	9	7631.6	42.1	4
1371.1	10	RVLTLNVTK	2188	CEA.554.V42K10	20.8	31.6	233.8	41428.6	2352.9	3
1371.13	9	FVSNLATGK	2189	CEA.656.K9	1466.7	206.9	-36000	-72500	5.3	2



Table XXIIC A24 Analog Peptides

Peptide	AA	Sequence	SEQ ID NO:	Source	A*2401 nM
52.0033	8	IYPNASLL	2190	CEA.101	176.5
52.0038	8	SWFVNGTF	2191	CEA.270	480
52.0137	11	RWCIPWQRLL	2192	CEA.10	151.9
52.0138	11	PWQRLLLTASL	2193	CEA.14	324.3
52.0141	11	FYTLHVIKSDL	2194	CEA.119	480
52.0142	11	TYLWWWNNQSL	2195	CEA.175	85.7
52.0144	11	TYLWWWNNQSL	2196	CEA.353	46.2
52.0145	11	SYTYRPGVNL	2197	CEA.423	218.2
52.0146	11	TYRPGVNLSL	2198	CEA.425	131.9
52.0147	11	TYLWWWNGQSL	2199	CEA.531	92.3
57.0036	9	RYCIPWQRF	2200	CEA.10.Y2F9	190.5
57.0037	9	IYPNASLLF	2201	CEA.101.F9	2.2
57.0038	9	LYWVNNQSF	2202	CEA.177.Y2F9	63.2
57.0039	9	LYGPDAPTF	2203	CEA.234.F9	63.2
57.0041	9	TYRPGVNF	2204	CEA.425.F9	52.2
57.0042	9	LYWVNGQSF	2205	CEA.533.Y2F9	15.8
57.0044	9	QYSWRINGF	2206	CEA.624.F9	109.1
57.0045	9	TYACFVSNF	2207	CEA.652.F9	8.6
57.0072	10	RYCIPWQRLF	2208	CEA.10.Y2F10	26.1
57.0073	10	FYNPPTTAKF	2209	CEA.27.Y2F10	181.8
57.0074	10	VYPELPKPSF	2210	CEA.140.F10	106.2
57.0075	10	TYQQSTQELF	2211	CEA.276.Y2	307.7
57.0076	10	VYAEPKPF	2212	CEA.318.F10	26.7
57.0077	10	YYRPGVNLSF	2213	CEA.426.F10	10
57.0078	10	QYSWLIDGNF	2214	CEA.446.F10	60
57.0079	10	SYLSGANLNF	2215	CEA.604.F10	10

Table XXIII. Immunogenicity of A2 supermotif-bearing peptides

Peptide	AA	Sequence	SEQ ID NO:	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	No. A2 Alleles Bound	CTL Peptide <sup>1</sup>	CTL Wild-type	CTL Tumor
CEA.78	9	QILGYVIGT	2216	313	148	106	100	151	5		0/3	
CEA.354	10	YLWWVNNQSL	2217	26	108	26	487	333	5		1/2	0/1
CEA.569	9	YVCGIQNSV	2218	98	358	159	80	182	5		1/2	0/1
CEA.605	9	YLSGANLNL	2219	28	165	2	804	-- <sup>2</sup>	3		2/2	1/2
CEA.687	9	ATVGIMIGV	2220	36	9	20	11	1	5		1/1	1/1
CEA.691	9	IMIGVLVGV	2221	69	62	13	106	89	5		8/8	4/7
CEA.24	9	LLTFWNPPT	2222	179	1720	67	755	-- <sup>2</sup>	2		0/1	0/1
CEA.24V9	9	LLTFWNPV	2223	16	307	26	56	952	4	1/1		1/1
CEA.233	10	VLYGPDAPTI	2224	128	606	270	804	--	2		2/4	0/3
CEA.233V10	10	VLYGPDAPTV	2225	26	430	16	206	952	4	3/4	2/2	1/4
CEA.589	9	VLYGPDPTI	2226	200	878	53	638	--	2		1/1	0/1
CEA.589V9	9	VLYGPDTPV	2227	20	165	91	154	9756	4	2/2	2/2	0/2
CEA.605	9	YLSGANLNL	2228	28	165	2.4	804	--	3		2/2	1/2
CEA.605V9	9	YLSGANLNV	2229	73	13	13	80	1600	4	4/4	3/4	1/4

1) Number of donors yielding a positive response/total tested.

2) -- indicates binding affinity = 10,000nM.



Table XXIV. MHC-peptide binding assays: cell lines and radiolabeled ligands.

A. Class I binding assays

Species			Radiolabeled peptide		SEQ ID NO:
Antigen	Allele	Cell line	Source	Sequence	
Human	A1	Steinlin	Hu. J chain 102-110	YTAVPLVY	2230
	A2	JY	HBVc 18-27 F6->Y	FLPSDYFPSV	2231
	A*0201		HBVc 18-27 F6->Y	FLPSDYFPSV	2232
	A*0202	P815 (transfected)	HBVc 18-27 F6->Y	FLPSDYFPSV	2233
	A*0203	FUN	HBVc 18-27 F6->Y	FLPSDYFPSV	2234
	A*0206	CLA	HBVc 18-27 F6->Y	FLPSDYFPSV	2235
	A*0207	721.221 (transfected)	HBVc 18-27 F6->Y	FLPSDYFPSV	2236
	A3	GM3107	non-natural (A3CON1)	KVFPYALINK	2237
	A11	BVR	non-natural (A3CON1)	KVFPYALINK	2238
	A24	KAS116	non-natural (A24CON1)	AYIDNVNKF	2239
	A*3101	SPACH	non-natural (A3CON1)	KVFPYALINK	2240
	A*3301	LWAGS	non-natural (A3CON1)	KVFPYALINK	2241
	A*6801	C1R	HBVc 141-151 T7->Y	STLPETYVVR	2242
	A*6802	AMAI	HBV pol 646-654 C4->A	FTQAGYPAL	2243
	B*0702	GM3107	A2 sigal seq. 5-13 (L7->Y)	APRTLVL	2244
	B7	Steinlin	HIV gp 586-593 Y1->F, Q5->Y	FLKDYQLL	2245
	B8	LG2	R 60s	FRYNGLIHR	2246
	B*2705	C1R, BVR	non-natural (B35CON2)	FPFKYAAAF	2247
	B*3501	TISI	non-natural (B35CON2)	FPFKYAAAF	2248
	B*3502	EHM	non-natural (B35CON2)	FPFKYAAAF	2249
	B*3503	PITOUT	EF-1 G6->Y	AEMGKYSFY	2250
	B*4403	KAS116	non-natural (B35CON2)	FPFKYAAAF	2251
	B51	AMAI	non-natural (B35CON2)	FPFKYAAAF	2252
	B53	KT3	non-natural (B35CON2)	FPFKYAAAF	2253
	B54	C1R	non-natural (C4CON1)	QYDDAVYKL	2254
	Cw*0401	721.221 transfected	non-natural (C6CON1)	YRHDDGNVL	2255
	Cw*0602	721.221 transfected	non-natural (C6CON1)	YRHDDGNVL	2256
	Cw*0702	721.221 transfected	non-natural (C6CON1)	YRHDDGNVL	2257
Mouse	D <sup>b</sup>	EL4	Adenovirus E1A P7->Y	SGPSNTYPEI	2258
	K <sup>b</sup>	EL4	VSV NP 52-59	RGYVFQGL	2259
	D <sup>d</sup>	P815	HIV-IIIIB ENV G4->Y	RGYRAFVTI	2260
	K <sup>d</sup>	P815	non-natural (KdCON1)	KFNPMKTYI	
	L <sup>d</sup>	P815	HBV's 28-39	IPQSLDSYWTSL	

B. Class II binding assays

Radiolabeled peptide					SEQ ID NO:
Species	Antigen	Allele	Cell line	Source	
Human	DR1	DRB1*0101	LG2	HA Y307-319	YPKYVVKQNTLKLAT
	DR2	DRB1*1501	L466.1	MBP 88-102Y	VVHFKNIVTRIPPPY
	DR2	DRB1*1601	L242.5	non-natural (760.16)	YAAFAAAKTAFAA
	DR3	DRB1*0301	MAT	MT 65KD Y3-13	YKTIADFEEARR
	DR4w4	DRB1*0401	Preiss	non-natural (717.01)	YARFQSQTTLKQKT
	DR4w10	DRB1*0402	YAR	non-natural (717.10)	YARFQQTTLKAAA
	DR4w14	DRB1*0404	Bin 40	non-natural (717.01)	YARFQSQTTLKQKT
	DR4w15	DRB1*0405	KT3	non-natural (717.01)	YARFQSQTTLKQKT
	DR7	DRB1*0701	Picut	Tet. tox. 830-843	QYIKANSKFIGITE
	DR8	DRB1*0802	OLL	Tet. tox. 830-843	QYIKANSKFIGITE
	DR8	DRB1*0803	LUY	Tet. tox. 830-843	QYIKANSKFIGITE
	DR9	DRB1*0901	HID	Tet. tox. 830-843	QYIKANSKFIGITE
	DR11	DRB1*1101	Sweig	Tet. tox. 830-843	QYIKANSKFIGITE
	DR12	DRB1*1201	Herluf	unknown eluted peptide	EALHQLKINPYVLS
	DR13	DRB1*1302	H0301	Tet. tox. 830-843 S->A	QYIKANAKFIGITE
	DR51	DRB5*0101	GM3107 or L416.3	Tet. tox. 830-843	QYIKANAKFIGITE
	DR51	DRB5*0201	L255.1	HA 307-319	PKYVVKQNTLKLAT
	DR52	DRB3*0101	MAT	Tet. tox. 830-843	NGQIGNDPNRDIL
	DR53	DRB4*0101	L257.6	non-natural (717.01)	YARFQSQTTLKQKT
	DQ3.1	QA1*0301/DOB1*031	PF	non-natural (ROIV)	YAHAAHAAHAAHAAHAA
Mouse	IA <sup>b</sup>		DB27.4	non-natural (ROIV)	YAHAAHAAHAAHAAHAA
	IA <sup>d</sup>		A20	non-natural (ROIV)	YAHAAHAAHAAHAAHAA
	IA <sup>k</sup>		CH-12	HEL 46-61	YNTDGSYDYGILQNSR
	IA <sup>s</sup>		LS102.9	non-natural (ROIV)	YAHAAHAAHAAHAAHAA
	IA <sup>u</sup>		91.7	non-natural (ROIV)	YAHAAHAAHAAHAAHAA
	IE <sup>d</sup>		A20	Lambda repressor 12-26	YLEDARRKKAIYEKKK
	IE <sup>k</sup>		CH-12	Lambda repressor 12-26	YLEDARRKKAIYEKKK

Table XXVI. Crossbinding data of A2 supermotif peptides.

Source	AA	Sequence	SEQ ID NO:	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	No. A2 Alleles Crossbound
CEA.24	9	LLTFWNPPT	2288	179	1720	67	755	--	2
CEA.78	9	QIIGYVIGT	2289	313	148	106	100	150	5
CEA.233	10	VLYGPDAPTI	2290	128	606	270	804	--	2
CEA.354	10	YLWWVNNQSL	2291	26	108	26	487	67	5
CEA.411	10	VLYGPDPTI	2292	294	358	476	7400	--	3
CEA.432	9	NLSLSCHAA	2293	455	2867	1449	18500	--	1
CEA.532	10	YLWWVNGQSL	2294	33	331	21	2056	286	4
CEA.569	9	YVCGIQNSV	2295	98	358	159	80	181	5
CEA.589	9	VLYGPDPTI	2296	200	878	53	638	--	2
CEA.605	9	YLSGANLNL	2297	28	165	2.4	804	--	3
CEA.687	9	ATVGIMIGV	2298	36	8.8	20	11	0.80	5
CEA.690	10	GIMIGVLGV	2299	64	205	31	142	500	5
CEA.691	9	IMIGVLGV	2300	69	62	13	106	89	5
CEA.691	10	IMIGVLGVA	2301	227	68	44	726	1509	3

-- indicates binding affinity = 10,000nM.



Table XXVII. Immunogenicity of A2 supermotif peptides

Source	AA	Sequence	SEQ ID NO:	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	No. A2 Alleles Crossbound	CTL Wild-type I	CTL Tumor
CEA.78	9	QIIQYVIGT	2302	313	148	106	100	151	5	0/3	
CEA.354	10	YLVWVNNQSL	2303	26	108	26	487	333	5	1/2	0/1
CEA.569	9	YVCGIQNSV	2304	98	358	159	80	182	5	1/2	0/1
CEA.605	9	YLSGANLNL	2305	28	165	2.4	804	-- <sup>2</sup>	3	2/2	1/2
CEA.687	9	ATVGIMIGV	2306	36	8.8	20	11	0.80	5	1/1	1/1
CEA.691	9	IMIGVLVGV	2307	69	62	13	106	89	5	8/8	4/7

1) Number of donors yielding a positive response/total tested.

2) -- indicates binding affinity =10,000nM.



Table XXVIII. Immunogenicity A2 supermotif analog peptides

Source	AA	Sequence	SEQ ID NO:	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	No. A2 Alleles Crossbound	CTL Peptide <sup>1</sup>	CTL Wild-type	CTL Tumor
CEA.24	9	LLTFWNPPT	2308	179	1720	67	755	-- <sup>2</sup>	2		0/1	0/1
CEA.24V9	9	LLTFWNPV	2309	16	307	26	56	952	4	1/1		1/1
CEA.233	10	VLYGPDAPTI	2310	128	606	270	804	--	2		2/4	0/3
CEA.233V10	10	VLYGPDAPTV	2311	26	430	16	206	952	4	3/4	2/2	1/4
CEA.589	9	VLYGPDPTI	2312	200	878	53	638	--	2		1/1	0/1
CEA.589V9	9	VLYGPDTPV	2313	20	165	91	154	9756	4	2/2	2/2	0/2
CEA.605	9	YLSGANLNL	2314	28	165	2.4	804	--	3		2/2	1/2
CEA.605V9	9	YLSGANLNV	2315	73	13	13	80	1600	4	4/4	3/4	1/4

1) Number of donors yielding a positive response/total tested.

2) -- indicates binding affinity = 10,000nM.



Table XXIX. DR supertype primary binding

Peptide	DR147 Algo Sum	Sequence	SEQ ID NO:	Source	DR1 nM	DR4w4 nM	DR7 nM	DR147 Cross- reactivity
39.0217	2	RWCIPWQRLLLTASL	2316	CEA.10	8.2	542	357	3
39.0218	3	QRLLLTASLLTFWNP	2317	CEA.16	--	--	--	0
39.0219	2	EVLLLVHNLPOHLFG	2318	CEA.50	2.0	52	53	3
39.0220	3	GREIYPNASLLIQN	2319	CEA.97	8.1	484	45	3
39.0221	2	EIIYPNASLLIQNII	2320	CEA.99	14	1154	156	2
39.0222	2	NASLLIQNIIQNDTG	2321	CEA.104	4546	--	--	0
39.0223	3	DTGFYTLHVIKSDLV	2322	CEA.116	69	1731	227	2
39.0224	2	YPELPKPSISSNNSK	2323	CEA.141	5556	--	--	0
39.0225	2	KPSISSNNSKPVEDK	2324	CEA.146	2381	--	7576	0
39.0226	3	YLWWVNNQSLPVSPR	2325	CEA.176	0.59	8.0	42	3
39.0227	3	LWWVNNQSLPVSPRL	2326	CEA.177	217	1552	3049	1
39.0228	2	QYSWFVNGTFQQSTQ	2327	CEA.268	192	80	926	3
39.0229	2	DTGLNRTTIVTTITVY	2328	CEA.305	--	--	2841	0
39.0230	2	KPFITSNNSNPVEDE	2329	CEA.324	--	--	--	0
39.0231	2	NRTLTLTLLSVTRNDVG	2330	CEA.375	238	--	--	1
39.0232	2	QELFISNITEKNSGL	2331	CEA.460	--	2500	--	0
39.0233	3	RTTVKTTITVSAELPK	2332	CEA.488	455	7031	317	2
39.0234	2	SAELPKPSISSNNSK	2333	CEA.497	--	--	--	0
39.0235	2	LDVLYGPDTPHISPP	2334	CEA.587	--	--	--	0
39.0236	2	TQVLFIAKITPNNNG	2335	CEA.637	61	--	6579	1
39.0237	2	QVLFIAKITPNNNGT	2336	CEA.638	42	1875	--	1
39.0238	3	YACFVSNLATGRNNS	2337	CEA.653	208	1667	3571	1
39.0239	2	NNSIVKSITVSASGT	2338	CEA.665	91	25	676	3
39.0240	3	NSIVKSITVSASGTS	2339	CEA.666	78	25	329	3

-- indicates binding affinity =10,000nM.



Table XXX DR supertype crossbinding

Peptide	Sequence	SEQ ID NO:	Source	DR1 nM	DR4w4 nM	DR7 nM	DR2w2B1 nM	DR2w2B2 nM	DR6w19 nM	DR5w11 nM	DR8w2 nM	DR147 Degen	Broad Degen (5/8)
39.0217	RWCIPWQRLLLTASL	2340	CEA.10	8.2	542	357	827	--	318	--	--	3	5
39.0219	EVLLLVHNLPHLFG	2341	CEA.50	2.0	52	53	40	--	1.0	588	408	3	7
39.0220	GREIYPNASLLIQN	2342	CEA.97	8.1	484	45	24	8333	2.9	6897	5904	3	5
39.0221	EIIYPNASLLIQNI	2343	CEA.99	14	1154	156	57	--	11	--	--	2	4
39.0223	DTGFYTLHVKSIDL	2344	CEA.116	69	1731	227	506	800	3889	2500	790	2	5
39.0226	YLWVNNQSLPVSPR	2345	CEA.176	0.60	8.0	42	110	2105	2.3	29	1065	3	6
39.0228	QYSWFVNGTFQSTQ	2346	CEA.268	192	80	926	--	6061	5833	370	--	3	4
39.0233	RTTVKTIIVSAELPK	2347	CEA.488	455	7031	317	364	--	700	--	--	2	4
39.0239	NNSIVKSITVSASGT	2348	CEA.665	91	25	676	3138	--	51	--	4083	3	4
39.0240	NSIVKSITVSASGTS	2349	CEA.666	78	25	329	3957	--	76	--	2882	3	4

-- indicates binding affinity =10,000nM.



Table XXXI. DR3 binding

Peptide	Sequence	SEQ ID NO:	Source	DR3 nM
39.0313	QNIQNDTGFYTLHV	2350	CEA.110	938
39.0314	LHVIKSDLVNEEATG	2351	CEA.122	2308
39.0315	KSDLVNEEATGQFRV	2352	CEA.126	--
39.0316	SDLVNEEATGQFRVY	2353	CEA.127	--
39.0317	NEEATGQFRVYPELP	2354	CEA.131	--
39.0318	QFRVYPELPKPSISS	2355	CEA.137	--
39.0319	AVAFTCEPETQDATY	2356	CEA.162	--
39.0320	TASYKCETQNPVSAR	2357	CEA.210	--
39.0321	NVLYGPDAPTISPLN	2358	CEA.232	--
39.0322	ISPLNTSYRSGENLN	2359	CEA.242	--
39.0323	SGSYTCQAHNSDTGL	2360	CEA.294	--
39.0324	TITVYAEPKPFITS	2361	CEA.315	--
39.0325	SNPVEDEDAVLTCE	2362	CEA.332	--
39.0326	AVALTCEPEIQNTTY	2363	CEA.340	--
39.0327	NQSLPVSRLQLSND	2364	CEA.360	--
39.0328	RLQLSNDNRTLTLSS	2365	CEA.368	938
39.0329	ECGIQNELSVDHSDP	2366	CEA.392	--
39.0330	QNELSVDHSDPVILN	2367	CEA.396	3659
39.0331	NVLYGPDPTISPSY	2368	CEA.410	--
39.0332	GVNLSLSCHAASNPP	2369	CEA.430	--
39.0333	TITVSAELPKPSISS	2370	CEA.493	--
39.0334	AVAFTCEPEAQNTTY	2371	CEA.518	--
39.0335	SDPVTLDVLYGPDTP	2372	CEA.582	--
39.0336	DVLYGPDTPISPPD	2373	CEA.588	--
39.0337	GANLNLSCHSASNPS	2374	CEA.608	--

-- indicates binding affinity =10,000nM.





Table XXXII. HTL Candidate Epitopes

Peptide	Sequence	SEQ ID NO:	Motif	Source	DR1 nM	DR4w4 nM	DR7 nM	DR3 nM	DR2w2 81 nM	DR2w2 82 nM	DR6w1 9 nM	DR5w1 1 nM	DR8w2 nM	DR147 Cross-reactivity	Broad Cross-reactivity (5/8)	DR3 Binder
39.0217	RWCIPWQRLLLTASL	2375	DR sup	CEA.10	8.2	542	357	--	827	--	318	--	--	3	5	0
39.0219	EVLLLVHNLQHLFG	2376	DR sup	CEA.50	2.0	52	53	336	40	--	1.0	588	408	3	7	1
39.0220	GREIYPNASLLIQN	2377	DR sup	CEA.97	8.1	484	45	1123	24	8333	2.9	6897	5904	3	5	0
39.0313	QNIHQNDTGFTLHV	2378	DR3	CEA.110	1136	>8182	--	938	867	--	9.7	--	--	0	2	1
39.0223	DTGFYTLHVKSIDL	2379	DR sup	CEA.116	69	1731	227	--	506	800	3889	2500	790	2	5	0
39.0226	YLVWVNNQSLPVSPR	2380	DR sup	CEA.176	0.60	8.0	42	2310	110	2105	2.3	29	1065	3	6	0
39.0328	RLQLSNDNRLLTLLS	2381	DR3	CEA.368	--	>8182	--	938	--	--	729	--	--	0	1	1

-- indicates binding affinity = 10,000nM.

B3 onel